WHAT IS CLAIMED IS:

1. A carrier for the catalyst to be used in the production of ethylene oxide, obtained by adding an aluminum compound, a silicon compound, and an alkali metal compound to a low-alkali content α-alumina powder having an alkali metal content in the range of 1 - 70 m.mols/kg of powder and calcining the resultant mixture, the aluminum compound content as reduced to aluminum being in the range of 0 - 3 mols/kg of carrier, the silicon compound content as reduced to silicon in the range of 0.01 - 2 mols/kg of carrier, and the alkali metal content as reduced to alkali metal in the range of 0.01 - 2 mols/kg of carrier respectively in said carrier.

2. A carrier according to claim 1, wherein the atomic ratio of said alkali metal content in said powder/said alkali metal content in said carrier is in the range of 0.0001 - 0.8.

3. A carrier according to claim 1, wherein said alkali metal content in said α-alumina is in the range of 3 - 30 m.mol/kg of powder.

4. A carrier according to claim 1, wherein the secondary particle average diameter of said α-alumina is in the range of 50 - 100μm of powder.

5. A carrier according to claim 1, wherein the BET specific surface area of said α-alumina is in the range of 1 - 4 m^2/g.

6. A carrier according to claim 1, wherein said aluminum compound content as reduced to aluminum is in the range of 0.01 - 2 mols/kg of carrier and said alkali metal compound content in the range of 0.02 - 0.5 mol/kg of carrier in said carrier.

7. A method for the production of a carrier to be used in the production of ethylene oxide, which comprises mixing a low-alkali content α-alumina powder having an alkali metal content in the range of 1 - 70 m.mols/kg of powder with an aluminum compound, a silicon compound, and an alkali metal compound at ratios such that in the produced carrier, the aluminum compound content as reduced to aluminum is in the range of 0 - 3 mols/kg of carrier, the silicon compound content as reduced to silicon in the range of 0.01 - 2 mols/kg of carrier, and the alkali metal compound content as reduced to alkali metal in the range of 0.01 - 2 mols/kg of carrier, forming the resultant mixture in a prescribed shape, and then calcining the formed mixture.

8. A method according to claim 7, wherein the atomic ratio of said alkali metal content in said powder/said alkali metal content in said carrier is in the range of 0.0001 - 0.8.

9. A method according to claim 7, wherein said alkali metal content in said α-alumina is in the range of 3 - 30 m.mols/kg of powder.

10. A method according to claim 7, wherein said alumina has an average particle diameter in the range of 50 - 100 μm.

11. A method according to claim 7, wherein said α-alumina has a BET specific surface area in the range of 1 - 4 m^2/g.

12. A method according to claim 7, wherein said aluminum compound content as reduced to aluminum is in the range of 0.01 - 2 mols/kg of carrier and said alkali metal compound content in the range of 0.02 - 0.5 mol/g of carrier respectively in said carrier.

13. A catalyst for use in the production of ethylene oxide, obtained by depositing a silver-containing catalytic component on a carrier set forth in claim 1.

14. A catalyst according to claim 13, wherein the amount of silver deposited is in the range of 1 - 30 wt. % based on the weight of said catalyst.

15. A catalyst according to claim 14, wherein an alkali metal is deposited as a reaction promoting agent in an amount in the range of 0.001 - 2 wt. %, based on the weight of the catalyst.

16. A catalyst according to claim 15, wherein said alkali metal is cesium or rubidium.

17. A method for the production of a catalyst to be used for the production of ethylene oxide, characterized by depositing a silver-containing catalytic component on a carrier set forth in claim 1 and then calcining the resultant composite.

18. A method according to claim 17, wherein said calcination is effected in the current of an inert gas at a temperature in the range of 400 - 700°C.

19. A method for the production of ethylene oxide, characterized by subjecting ethylene to catalytic gas phase oxidation with a molecular oxygen-containing gas in the presence of a catalyst set forth in claim 13.